

May 14, 2001  
Ref. No.: EOS/ETS-0202-C01

National Aeronautics and  
Space Administration  
Goddard Space Flight Center  
Greenbelt, Maryland 20771

Attention: Mr. Willie Fuller  
Code 581  
Building 32, Room N212D

Subject: Contract No.: NAS9-98100  
CSOC ETS Completion Form Task  
EOSDIS Test System (ETS) Simulated CCSDS Telemetry Generator  
(SCTGEN) -- Delivery of the Patch Release 2.6 Software

Dear Mr. Fuller:

The CSOC contractor is pleased to deliver Patch Release 2.6 of the Simulated CCSDS Telemetry Generator (SCTGEN) of the ETS. Release 2.6 of SCTGEN provides solutions to nine Discrepancy Reports (DRs), all in support of PM-1 and Aura missions.

The delivery package contains 5 attachments as listed below, describing the delivery contents, build instructions, resolved DRs, and release history. A completed Mission Systems Configuration Management (MSCM) form is included.

If you have any questions concerning this delivery, please call me at (301) 805-3609.

Sincerely yours,

Chii-Der Luo  
Tools and Special Facilities Manager

Delivery Package Reviewed by:

Joe Polesel  
Simulation Group Sustaining Engineer Manager

Delivery of the Release 2.6 Software  
February 9, 2001, Ref. No.: EOS/ETS-0202-C01  
EOSDIS Test System (ETS) Simulated CCSDS Telemetry Generator

Page Two

The following attachments contain the details of the SCTGEN software.

- Attachment A - contains the instructions to build and install the software
- Attachment B - contains a list of the resolved DRs
- Attachment C - contains the release history summary matrix
- Attachment D - contains a file name listing of the delivery contents
- Attachment E - contains the Mission Systems Configuration Management (MSCM) form

Distribution: (\* - Letter Only)

<u>NASA</u>	<u>HTSI</u>	<u>Lockheed Martin</u>	<u>CSC</u>
Fuller, W. *	Bradbury, T.*	Cordier, G.	Noone, E.
Harbaugh, R.*	Luo, C.		Polesel, A.
Iona, G.*	Braun, J. *		Shurie, E.
Johns, A.*	Zarek, J. *	<u>TRW</u>	Swope, J.*
Kelly, A.			Whitesell, S.*
Ondrus, P.*		Tiren, C.	Task File.
ESDIS Library	<u>Unisys</u>		
	Coleman, C.	<u>Raytheon</u>	<u>Caelum</u>
<u>QSS</u>		Singhal, S.	Holmes, D.
Chomko, E.			Siskind, A.
Elfant, C.			
Walters, A.			

## **Attachment A — Release 2.6 Build Instructions**

SCTGEN consists of two elements: (1) the SCTGEN Graphical User Interface, referred to as SCTGUI; and (2) the SCTGEN application software, referred to as SCTGEN. Instructions for building the complete system, SCTGEN Release 2.6, step by step, are contained in the following sections.

### **A.1 Introduction**

SCTGEN Release 2.6 is being delivered as two files. The first file is named “sctgenbld.tar.Z” and the second file is named “sctguibld.tar.Z”. These files are in a compressed format. These files should be placed in the \$HOME directory and uncompressed.

### **A.2 Uncompress the delivery tape**

- 1) Change to the \$HOME directory.
- 2) Type “tar xvf /dev/rmt/0m sctgenbld.tar.Z” to copy first file from tape.
- 3) Type “tar xvf /dev/rmt/0m sctguibld.tar.Z” to copy second file from tape.
- 4) Type “uncompress sctgenbld.tar.Z” to uncompress file, which will become sctgenbld.tar.
- 5) Type “uncompress sctguibld.tar.Z” to uncompress file, which will become sctguibld.tar.

### **A.3 Build SCTGEN**

- 1) Change to the \$HOME directory.
- 2) Type “tar xvf sctgenbld.tar” to expand the SCTGEN files.
- 3) Type “tar xvf sctguibld.tar” to expand the SCTGUI files.
- 4) Change to the \$HOME/sctgen2.0/work directory.
- 5) For the SGI platform, type “sgi.mksetgen.cmd all”, for all other platforms type “mksetgen.cmd\* all”, to build all of SCTGEN. This will take about 10 to 15 minutes and will generate warning messages.
- 6) Change to the \$HOME/sctgen2.0/work directory and type “cp sctgen ~/sctgui2.0/bin/*platform*.sctgen2.6” to rename the SCTGEN executable, where *platform* is sgi, hp, or sun.
- 7) Change to the \$HOME/sctgui2.0/bin directory.
- 8) Type “rm sctgen” to remove the current executable.
- 9) Type “ln -s ./*platform*.sctgen2.6 sctgen” to create a link to the executable, where *platform* is sgi, hp, or sun.

\*For the HP platform:

For step 5, do not type the sgi prefix.

For steps 6 and 9, replace “hp” for “sgi”, or something comparable to denote host platform.

\*For the SUN platform:

For step 5, do not type the sgi prefix.

For steps 6 and 9, replace “sun” for “sgi”, or something comparable to denote host platform.

Note: The file names may not be exactly the same depending on the platform. For example, different UNIX systems might have different header file extensions. Make sure that the correct files are replaced, otherwise, the changes will not take effect.

#### **A.4 Supported platforms**

Previous versions of SCTGEN have been built and tested using the environments listed below.

SUN platform:

- SunOS Generic Version 4.3 including C++ compiler for SUN UNIX.

HP platform:

- HP OS Version 9.0 including C++ compiler for HP UNIX.

SGI platform:

- IRIX Version 6.2 including standard CFRONT compatible C++ compiler.

### **Attachment B — Resolved Discrepancy Reports**

This attachment reflects the DRs that were addressed with SCTGEN Release 2.6. The DRs are listed in the table below by DR number, status, severity, subsystem name, short description, and related NCR number. A full description of each DR follows the summary table. Complete information on all DRs is maintained in the ESDIS Discrepancy Report Tracking Tool (DRTT), which can be accessed via the Internet at address <http://iree.gsfc.nasa.gov/ddts/> (directly) or from the ESDIS Activities, Progress Reports and Schedules page at <http://spsosun.gsfc.nasa.gov/ESDIShome.html>.

#### **Summary of Closed Discrepancy Reports**

<b>Critical(1)</b>	<b>Urgent(2)</b>	<b>Routine(3)</b>
<b>0</b>	<b>4</b>	<b>5</b>

#### **Status Definitions**

N - New	A - Assigned Analysis	R - Assigned Resolution
D - Delivered	V - Verified	C - Closed
W - Withdrawn	P - Postponed	X - Duplicate

<b>DR/IDR #</b>	<b>Status</b>	<b>Severity</b>	<b>Subsystem</b>	<b>Description</b>	<b>Related NCR</b>
ETS0320	A	3	SCTGEN	Generate Multi File CADUS	
ETS0368	A	2	SCTGEN	SCTGEN GUI Does Not Allow Convolutional Encoding Entries	
ETS0370	A	2	SCTGEN	Multiplexing Display Blocks User from Entering start packet value > 100	
ETS0371	A	3	SCTGEN	Deleted APID/VCID Combination Appears in Packet Definition Display	
ETS0373	A	3	SCTGEN	Old VCID Appears in script	
ETS0394	A	3	SCTGEN	Remove/Update Range Values	
ETS0424	A	2	SCTGEN	Default to Idle	
ETS0439	N	3	SCTGEN	Add AURA to SCTGEN	
ETS0440	N	2	SCTGEN	Clean up time conversion routines	

\*Total number DRs addressed=9

## **ETS0320**

A need for generating multiple CADU files by specifying the file size of each CADU file, has come up during data generation efforts for TESS, EGS10 and MOSS2 tests. The current GUI (SCTGEN1.4) contains entries to do this, however a segmentation fault occurs when user attempts to create multiple CADU files.

## **ETS0368**

The SCTGEN GUI does not have displays or display fields for the user to create the CADU data to have convolutional encoding. Manually entering the following lines in the script may allow for the cadu data to contain convolutional encoding:

```
stream.bitcode.vcxx inStream(vcxxmux) trailer(4) tpattern(0x00)- halfConv(1)
```

## **ETS0370**

When entering a multiplexing pattern on the GUI Multiplexer for VCNN display, SCTGEN gives an error message when the user enters a packet start value > 100. Thus, the user cannot enter a span larger than 100. For creating EDOS test data (CADUs) the user must enter the multiplexing pattern through the script. Once this is done, the user can no longer use the GUI to make other script updates.

## **ETS0371**

Entered APID 64 VCID 10 SCID 42 combination on the Scenario Definition Display. Deleted the above specification and reentered APID 64 VCID 30 SCID 154. The new APID/VCID information appeared on the CADU stream display, but the Packet definition display for APID 64 contained VCID 10 and SCID 42 instead of the new VCID/SCID.

## **ETS0373**

Removed the APID/VCID combination containing VCID 40. VCID 40 does not appear in the CADU Stream display or multiplexing display. However, when a script is generated a stream referencing vc40 is created. This causes an error when running SCTGEN. Manually, deleted the lines in the .tcl file referencing vc40, and regenerated the script. The vc40 stream still appeared. Had to restart SCTGEN and then generate a script in order to remove the vc40 stream.

### **ETS0394**

The Input Window display for EDS/PDS and Packet Products containing range of values for Spacecraft ID (0-99). AQUA has spacecraft ID of 154 the range should be either updated or removed, since SCTGEN allows the user to enter values greater than 99.

### **ETS0424**

When the last packet in a cadu does not completely fill the cadu the system defaults to a fill pattern with no idle at the end. This causes problems for EDOS with data generation. The GUI should default to adding an idle packet to the end of the cadu. Modify the "Last Unit" field to "I" instead of "N"

Last Unit (I) instead of Last Unit (N).

### **ETS0439**

Add AURA as a spacecraft supported by SCTGEN

### **ETS0440**

The 2 time conversion routines (cuctime\_to\_sctime and amsretime\_to\_sctime) need to be cleaned up to eliminate print statements that were included from when these were stand-alone programs, and to eliminate impossible error checking. Also several variables (like year and milliseconds) need to be retyped as unsigned integer instead of integer.

**Attachment C — Release History Summary Matrix**

The attached Release History Summary Matrix reflects the SCTGEN Release 2.6 Delivery.



Release History Summary Matrix									
SYSTEM:	SCTGEN						PAGE	1 OF 2	
RELEASE NUMBER		1.0	1.1.0	1.2.0	1.3.0	1.4.0	1.5.0 (2.0)	2.1	2.2
DELIVERY DATE		3/3/97	5/27/97	8/25/97	2/27/98	6/26/98	9/10/99	11/30/99	2/2/00
CONFIGURATION ITEM	CI NO.								
SCTGEN GUI	5.1	1.0	1.1.0	1.2.0	1.3.0	1.4.0	1.5.0 (2.0)	2.1	2.2
SCTGEN Application Software	5.2	1.0	1.1.0	1.2.0	1.3.0	1.4.0	1.5.0 (2.0)	2.1	2.2

Release History Summary Matrix									
SYSTEM:	SCTGEN						PAGE	2 OF 2	
RELEASE NUMBER		2.3	2.4	2.5	2.5a	2.6			
DELIVERY DATE		6/9/00	10/18/00	1/26/01	2/9/01	5/14/01			
CONFIGURATION ITEM	CI NO.								
SCTGEN GUI	5.1	2.3	2.4	2.5	2.5a	2.6			
SCTGEN Application Software	5.2	2.3	2.4	2.5	2.5a	2.6			

## **Attachment D- Listing of Delivery Contents**

Delivery is on one 4 mm magnetic tape. The contents of the tar tape are listed below. Sections D.1 and D.2 contain the file name listings for the SCTGEN GUI and SCTGEN application software, respectively.

### **D.1 SCTGEN GUI Patch Release 2.6**

globals.tcl  
procDATA.tcl  
procEDS.tcl  
procEDU.tcl  
procPACKET.tcl  
procPDS.tcl  
procRBP.tcl  
procSCENARIO.tcl  
winFRAME.tcl  
winSCRIPT.tcl

### **D.2 SCTGEN Patch Release 2.6**

Amsre\_to\_sctime.cpp  
Cuctime\_to\_sctime.cpp  
DS\_2Output.cpp  
DS\_Output.hh  
ETS\_Version.hh  
Gap.cpp  
TigXOutput.cpp

**Attachment E — Mission Systems Configuration Management Form**

This attachment contains the completed Mission Systems Configuration Management (MSCM) form.

### Mission Systems Configuration Management Form

<u>1. ORIGINATOR</u> Donald Holmes	<u>2. ORGANIZATION</u> CSOC	<u>3. PHONE</u> (301) 805-3547	<u>4. E-MAIL ADDRESS</u> Donald.Holmes@csconline.com
<u>5. ELEMENT</u> Other =====> SCTGEN		<u>6. INSTALLATION PRIORITY</u> Routine	<u>7. TRACKING NUMBER</u> (Assigned by CM Office)
<u>8. SOURCE CHANGE REQUEST(S):</u>  ETS DRB approved SCTGEN release for SMO DR closure.		<u>9. APPROVALS</u>  <div style="display: flex; justify-content: space-between;"> <div>Element Manager</div> <div>_____ / ____ / ____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Flight Ops Director</div> <div>_____ / ____ / ____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Operations Manager</div> <div>_____ / ____ / ____</div> </div>	
<u>10. DELIVERED SYSTEM</u> (Check all that apply)			
	Name	Version	Media Identification
<input type="checkbox"/> Hardware	_____	_____	_____
<input checked="" type="checkbox"/> Software	<u>SCTGEN</u>	<u>R2.6</u>	<u>4 mm tape</u>
<input type="checkbox"/> Database	_____	_____	_____
<input checked="" type="checkbox"/> Documentation:			
	<u>Delivery Package</u>	<u>n/a</u>	<u>Via email</u>
	_____	_____	_____
	_____	_____	_____
<input type="checkbox"/> Other	_____	_____	_____
<u>11. CHANGE DESCRIPTION</u>  <u>SCTGEN 2.6 addresses seven DRs. None are workarounds.</u> _____ _____ _____			
<u>12. ATTACHMENT(S):</u> Check if YES <input checked="" type="checkbox"/>  Description: SCTGEN 2.6 delivery package (cover letter with attachments) dated 5/14/01. _____ _____			
<u>13. CM OFFICE USE</u>			
	Location (Bldg/Room)	Slot location(s)	
Hardware	_____ / _____	_____	
Media	_____ / _____	_____	
Documentation	_____ / _____	_____	
Installation date	_____ / ____ / ____	CM Office Signature _____	

Form MSCM (970327)